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EXAMINER

MAZUMDAR, SONYA

ART UNIT

PAPER NUMBER

1791

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/711,645	Applicant(s) KARLSSON ET AL.	
	Examiner SONYA MAZUMDAR	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 August 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 27,29,31-36,39-45 and 47-60 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 27,29,31-36,39-45 and 47-60 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 27, 29, 31-36, 39-45, and 47-60 have been considered but, in light of amendments, are not fully persuasive.
2. Applicant argues that Sobolev teaches applying resin/reinforcement uniformly and/or evenly. Claim 1 states that an adhesive is applied onto at least one cover sheet onto predetermined specific areas of a cover sheet in a pattern comprising cavities or channels which remain free of adhesive and fibers, or in the form of a non-continuous layer comprising islands of adhesive. Sobolev teaches that the resins or polymers used to form the core between the metal sheets of the structural laminate can be any desired type of resin having a desired curing mechanism which will provide the overall strength properties appropriate for use; the strength of the structural laminate of the present invention is provided in part by the strength properties of the resin used and in part by the bond strength between the resin and the surfaces of the metal sheets. Obviously, in the event the desired characteristics for the laminate are not achieved initially with a particular resin, one skilled in the art will be able to reformulate the resin to adjust the desired properties of the resin or change the surface preparation in order to provide the desired (column 10, line 55 – column 11, line 25).

In response to applicant's argument that the teachings by Anderson, Mesek, Otomine et al., and Barnes are nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned,

Art Unit: 1791

in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992).

In this case, the teachings by Anderson et al. are used to show that it would have been obvious to do so to keep fibers aligned in a desired orientation, for example, to only embed one end of the fibers (column 3, lines 26-35), in producing a laminate, where before two cover sheets are joined together, one cover sheet (19) is applied with adhesive (23), and the other cover sheet (40) is initially applied with adhesive (42), fed from a supply source (43) and through a nip formed by a metering roll (44) and an applicator roll (45). Fibers of different kinds (52) are applied onto the cover sheet (40) from a flock supply (53) (abstract; column 1, lines 59-61; column 2, line 13 –column 3, line 60; column 4, lines 50-67; Figure 2). Also, fiber properties such as density, thickness, length, and orientation relative to the cover sheets are important to consider when producing a laminate with specifically desired characteristics (Anderson: column 1, lines 38-39; column 3, lines 26-36; column 4, lines 50-68). It would thus be obvious to one of ordinary skill in the art to vary the fibers to achieve desired properties in the laminate.

The teachings by Mesek are used to show that it would have been obvious to apply lines or beads (22) of adhesive to an impervious sheet (12), as an alternative to a continuous layer, to prevent excessive stiffness, in the case adhesive is applied as a continuous layer, yet avoid creating substantial space for passage of different elements (column 8, line 58 – column 9, line 7). Sobolev also mentions that the adhesive resin must be sufficiently tough and rigid to provide adequate strength in the laminate, yet

Art Unit: 1791

flexible. If the cured resin is too rigid, bonding to the surface is likely to be inadequate and the resin may be too brittle to provide good impact resistance. Therefore, the resin should have some flexibility to provide good bonding to the metal and good impact resistance (column 10, line 60 – column 11, line 6). Furthermore, Otomine et al. teach alternative methods of silk screening and spraying an adhesive layer to a metal foil (column 1, lines 63-67; column 4, lines 3-9) to form any complicated graphic to place fibers on.

The teachings by Barnes are used to show that it would have been obvious to fix fibers by inductive stitch welding in flocking of metal articles, to ensure the fibers are set and locked to the surface of the metal article, by inductively heating the article, after electrostatically attracting and applying the fibers to the article (abstract; column 1, line 66 – column 2, line 2; column 5, lines 1-3). Applicant directs to paragraph 0113 in the specification to teach inductively heating one metal foil to weld with the fibers, but states that the heating is performed to partially melt two metal parts, or two cover sheets, and fuse into each other. However, claims 31 and 32 disclose fixing fibers onto a cover sheet by inductive stitch welding, and not fixing two cover sheets together.

Therefore, the rejections are maintained.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Art Unit: 1791

4. Claim 27, 29, 34, 40, 42, 44, 45, 47, 48, 50, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable by Sobolev (US 5,030,488) in view of Mesek (US 3,975,222), Otomine et al. (US 4,142,929), and Anderson et al. (US 3,684,637).

With respect to claims 27, 29, 47, and 48, Sobolev teaches a method for producing laminates comprising two metal sheets with fibrous core made of metallic fibers. Before the two sheets are joined together, one cover sheet is applied in certain areas with adhesive and fibers, both metallic and non-metallic (abstract; column 8, lines 17-22; column 11, lines 38-62; Figures 1A and 1B).

Sobolev does not specifically teach applying fibers and adhesive separately. However, Anderson teaches that it would have been obvious to do so to keep fibers aligned in a desired orientation, for example, to only embed one end of the fibers (column 3, lines 26-35), in producing a laminate, where before two cover sheets are joined together, one cover sheet (19) is applied with adhesive (23), and the other cover sheet (40) is initially applied with adhesive (42), fed from a supply source (43) and through a nip formed by a metering roll (44) and an applicator roll (45). Fibers of different kinds (52) are applied onto the cover sheet (40) from a flock supply (53) (abstract; column 1, lines 59-61; column 2, line 13 –column 3, line 60; column 4, lines 50-67; Figure 2). Also, especially with respect to claim 29, fiber properties such as density, thickness, length, and orientation relative to the cover sheets are important to consider when producing a laminate with specifically desired characteristics (Anderson: column 1, lines 38-39; column 3, lines 26-36; column 4, lines 50-68). It would thus be

Art Unit: 1791

obvious to one of ordinary skill in the art to vary the fibers to achieve desired properties in the laminate.

Although Sobolev in view of Anderson et al. teach that adhesive may be applied by various methods to create a pattern on a cover sheet (Anderson: column 5, lines 44-50), the teachings do not specifically disclose applying adhesive in a pattern in a discontinuous manner comprising cavities/channels free of adhesive or “islands” of adhesive. However, it would have been obvious to do so as Mesek teaches applying lines or beads (22) of adhesive to an impervious sheet (12), as an alternative to a continuous layer, to prevent excessive stiffness, in the case adhesive is applied as a continuous layer, yet avoid creating substantial space for passage of different elements (column 8, line 58 – column 9, line 7). Furthermore, Otomine et al. teach alternative methods of silk screening and spraying an adhesive layer to a metal foil (column 1, lines 63-67; column 4, lines 3-9) to form any complicated graphic to place fibers on.

With respect to claim 40, Sobolev in view of Anderson et al., Mesek, and Otomine et al. teaches applying a mixture of metallic and non-metallic fibers (Sobolev: column 11, lines 41-44 and lines 59-62).

With respect to claim 42, Sobolev in view of Anderson et al., Mesek, and Otomine et al. teach teaches applying fibers through an air stream, which may be of increasing and decreasing fiber content across the stream (Mesek: abstract; column 9, lines 48-51) to make a flexible laminate with loosely compacted fibers.

With respect to claims 44 and 45, Sobolev in view of Anderson et al., Mesek, and Otomine et al. teaches transferring a fibrous layer (3) from a base (1) to a substrate (7), and then removing the base (Otomine: Figures 1-3).

With respect to claim 50, Sobolev in view of Anderson et al., Mesek, and Otomine et al. teaches a method of electrostatic flocking as an alternative to mechanically applying fibers (Anderson: column 4, line 68 – column 5, line 4).

5. Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable by Sobolev in view of Barnes (US 3,850,659).

Sobolev teaches a method for producing laminates comprising two metal sheets with fibrous core made of metallic fibers. Before the two sheets are joined together, one cover sheet is applied in certain areas with a mixture of adhesive and fibers by a spray nozzle. The laminate is heated after joining the two sheets (abstract; column 8, lines 17-22 and lines 63-68; column 11, lines 38-61; column 32, lines 40-41; Figures 1A and 1B).

Sobolev does not teach fixing fibers by inductive stitch welding. However, it would have been obvious to one having ordinary skill in the art to do so in the invention of Sobolev, as Barnes et al. teach the flocking of metal articles, to ensure the fibers are set and locked to the surface of the metal article, by inductively heating the article, after electrostatically attracting and applying the fibers to the article (abstract; column 1, line 66 – column 2, line 2; column 5, lines 1-3).

6. Claims 33, 35, 54, 57, and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable by Sobolev in view of Mesek.

Art Unit: 1791

Sobolev teaches a method for producing laminates comprising two metal sheets with fibrous core made of metallic fibers. Before the two sheets are joined together, one cover sheet is applied in certain areas with a mixture of adhesive and fibers, both metallic and non-metallic, by a spray nozzle (abstract; column 8, lines 17-22; column 11, lines 38-62; Figures 1A and 1B).

Sobolev does not specifically teach applying adhesive in a pattern in a discontinuous manner comprising cavities/channels free of adhesive or “islands” of adhesive. However, it would have been obvious to do so as Mesek teaches applying lines or beads (22) of adhesive to an impervious sheet (12), and thus adhering fibers to the patterns of adhesive, as an alternative to a continuous layer, in order to prevent excessive stiffness in the case if adhesive is applied as a continuous layer, and also create substantial space in which air or liquid can pass through (column 8, line 58 – column 9, line 7).

7. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sobolev in view of Mesek, as applied to claim 33 above, and further in view of Gregorian et al. (US 4,035,532)

The teachings of claim 33 are as described above.

Sobolev in view of Mesek does not teach using a foamed adhesive, applied substantially in dots. However, it would have been obvious to use a foamed adhesive, as Gregorian et al. teach a method of transferring flock from a temporary substrate to a main substrate, by using a foamed adhesive at a desired viscosity to adhere the flock

Art Unit: 1791

onto the main substrate (column 2, lines 3-9; column 4, lines 10-22; Figure 2) to impart air passage to the main substrate with the adhesive's inherent porosity.

8. Claims 39 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sobolev in view of Anderson et al., Mesek, and Otomine et al., as applied to claim 27 above, and further in view of Anderson (US 3,616,007).

The teachings of claim 27 are as described above.

Sobolev in view of Anderson et al., Mesek, and Otomine et al. does not specifically teach steps of both pre-curing and final curing an adhesive layer. However, it would have been obvious to do so, as Anderson ('007) teaches softening and reactivating an adhesive material by heat before application of fibers and final curing the adhesive before rolling a laminate up for storage (column 4, lines 16-29), to partially embed fibers after pre-curing an adhesive and produce a useable product in a final curing of the adhesive.

9. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sobolev in view of Anderson et al., Mesek, and Otomine et al., as applied to claim 27 above, and further in view of Abrams et al. (US 5,858,156)

The teachings of claim 27 are as described above.

Sobolev in view of Anderson et al., Mesek, and Otomine et al. does not teach applying fibers in the form of a positive/negative pattern onto a cover sheet. However, it would have been obvious to do so, as Abrams et al. teach electrodepositing flock, as an alternative method in adhering flock to a sheet, by passing a sheet between potentials of a high voltage electrostatic field, and an electrode is used to give flock a charge and

Art Unit: 1791

become aligned with the electrical field lines of force (column 5, lines 40-61; column 6, lines 13-35).

10. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sobolev in view of Anderson et al., Mesek, and Otomine et al., as applied to claim 27 above.

The teachings of claim 27 are as described above.

Sobolev in view of Anderson et al., Mesek, and Otomine et al. teaches using a wide variety of adhesives (Anderson: column 5, lines 14-44).

Applicant also admits that the kind of the adhesive used is substantially determined by the kind of application, the later use of the composite layer structure and especially by the desired properties like for example the stiffness or flexibility, strength and so on, as well as the kind and distribution of the flock fibers (Applicant's specification: paragraph 59). These factors would have been obvious to one having ordinary skill in the art in selecting the proper adhesive which may be achieved in the course of routine experimentation, by reference to standard technical literature (e.g., Adhesive Age trade magazine, Adhesive Handbook), or through consultation with industrial or specialty adhesive suppliers (e.g. Dupont, Dura, Loctite, Lord, etc.).

11. Claim 51 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sobolev in view of Mesek, as applied to claim 33 above, and further in view of Coffey et al. (US 3,764,067)

The teachings of claim 33 are as described above.

Sobolev in view of Mesek does not teach applying a mixture of fibers and adhesive by screen printing. However, it would have been obvious to do so, as Coffey

Art Unit: 1791

et al. teach screen printing as a well-known alternative to spraying, which has already been taught by Sobolev (Coffey: column 1, lines 13-17).

12. Claim 53 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sobolev in view of Anderson et al., Mesek, and Otomine et al., as applied to claim 27 above, and further in view of Gregorian et al.

The teachings of claim 27 are as described above.

Sobolev in view of Anderson et al., Mesek, and Otomine et al. does not teach using a foamed adhesive, applied substantially in dots. However, it would have been obvious to use a foamed adhesive, as Gregorian et al. teach a method of transferring flock from a temporary substrate to a main substrate, by using a foamed adhesive at a desired viscosity to adhere the flock onto the main substrate (column 2, lines 3-9; column 4, lines 10-22; Figure 2) to impart air passage to the main substrate with the adhesive's inherent porosity.

13. Claims 55 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sobolev in view of Mesek, as applied to claim 33 above, and further in view of Abrams et al. (US 5,858,156)

The teachings of claim 33 are as described above.

Sobolev in view of Mesek does not teach applying fibers in the form of a positive/negative pattern onto a cover sheet. However, it would have been obvious to do so, as Abrams et al. teach electrodepositing flock, as an alternative method in adhering flock to a sheet, by passing a sheet between potentials of a high voltage

Art Unit: 1791

electrostatic field, and an electrode is used to give flock a charge and become aligned with the electrical field lines of force (column 5, lines 40-61; column 6, lines 13-35).

14. Claim 56 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sobolev in view of Mesek, as applied to claim 33 above, and further in view of Anderson (US 3,616,007).

The teachings of claim 27 are as described above.

Sobolev in view of Mesek does not specifically teach steps of both pre-curing and final curing an adhesive layer. However, it would have been obvious to do so, as Anderson teaches softening and reactivating an adhesive material by heat and final curing the adhesive before rolling a laminate up for storage (column 4, lines 16-29), to eventually produce a useable product after a final curing of the adhesive.

15. Claim 59 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sobolev in view of Mesek, as applied to claim 33 above.

The teachings of claim 33 are as described above.

Applicant also admits that the kind of the adhesive used is substantially determined by the kind of application, the later use of the composite layer structure and especially by the desired properties like for example the stiffness or flexibility, strength and so on, as well as the kind and distribution of the flock fibers (Applicant's specification: paragraph 59). These factors would have been obvious to one having ordinary skill in the art in selecting the proper adhesive which may be achieved in the course of routine experimentation, by reference to standard technical literature (e.g.,

Art Unit: 1791

Adhesive Age trade magazine, Adhesive Handbook), or through consultation with industrial or specialty adhesive suppliers (e.g. Dupont, Dura, Loctite, Lord, etc.).

Conclusion

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SONYA MAZUMDAR whose telephone number is (571)272-6019. The examiner can normally be reached on 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Philip Tucker can be reached on (571) 272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1791

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SM

/Philip C Tucker/
Supervisory Patent Examiner, Art Unit 1791